DONALDSON RUN BRIDGE
George Washington Memorial Parkway, spanning Donaldson Run
Arlington Vicinity
Arlington County
Virginia

HAER No. VA-77



WRITTEN HISTORICAL AND DESCRIPTIVE DATA

PHOTOGRAPHS

HISTORIC AMERICAN ENGINEERING RECORD
National Park Service
Department of the Interior
P.O. Box 37127
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# HISTORIC AMERICAN ENGINEERING RECORD

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## I. INTRODUCTION

Location: George Washington Memorial Parkway (GWMP) milepost 5.71; 5.8 miles south of Interstate-495; bridge carries the parkway over Donaldson Run, a tributary of the Potomac River in Arlington County.

FHwA Structure No.: 3300-008P.

Date of Construction: 1957-1959.

Type: Continuous steel plate girder bridge.

Designer: Bureau of Public Roads (BPR) with approval from the National Park Service (NPS). William Haussmann, NPS Architectural Designer. T.D. Harris, BPR Division Bridge Engineer for construction.

Contractor: Blackwell Engineering Co., Merrifield, VA.

Present Owner: National Capital Region, National Park Service.

Present Use: Non-commercial vehicular traffic.

Significance: Built as part of a project to extend the GWMP closer to the proposed terminus at Great Falls, Virginia.

Project Information: Documentation of the George Washington Memorial Parkway and Clara Barton Parkway was undertaken as a multi-year project by the Historic American Buildings Survey and the Historic American Engineering Record (HABS/HAER), a combined division of the National Park Service, Robert Kapsch, Chief. The project was sponsored by the Park Roads Program of the National Park Service, John Gingles, Deputy Chief, Engineering and Safety Services Division. The Project Supervisor was Sara Amy Leach, HABS Historian. Bridge reports were prepared by Elizabeth M. Nolin (1988); Michael P. Kucher (University of Delaware, 1993); and Jennifer P. Wentzien (University of Washington, 1994).

HABS Report No. VA-69 prepared by Timothy Davis (University of Texas) provides an overview history of the entire parkway project. Jack E. Boucher and Jet Lowe produced the large-format photographs. The Washington-based summer 1994 documentation team was headed by landscape architect Tim Mackey (Harvard University, Graduate School of Design).

## II. HISTORY

The Donaldson Run Bridge is one of several bridges designed and built in the 1950s to carry the George Washington Memorial Parkway (GWMP) closer to a proposed terminus at Great Falls, Virginia. The bridge was built when the GWMP was extended from Spout Run to the CIA in Langley, Virginia. The northern Virginia segment of the parkway covers some of the most rugged terrain in the region and had therefore previously remained undeveloped. Perhaps the most difficult aspect of construction of bridges over the Potomac palisades was finding a way to get cranes and other construction equipment into the deep cuts.

The design for Donaldson Run Bridge is very similar to a drawing for Windy Run Bridge which first appears in a 1950 drawing titled "Steel and Concrete Bridge." The design is credited to William Haussmann of the National Park Service (NPS). Haussmann's name appears on the architectural drawings for GWMP bridge structures from the 1940s through the 1960s. The structural design was executed by engineers from the Bureau of Public Roads (BPR) in 1957. Drawings received final approval from M.S. Sager, NPS Acting Chief of Design and Construction.

The design reflects the popular aesthetic of the period as well as the functionally driven design of structures which would not often be seen. Christopher Tunnard succinctly describes the aesthetic of the late 1950s and 1960s as "the lighter and cleaner the silhouette, the better the design."[1] At Donaldson Run these effects are achieved by the use of metal railings least obstructive to views, cantilevered double-"T" shaped piers, and a reliance on structural details for ornamentation. The continued influence of the "rustic" style advocated for earlier GWMP structures is evident in the stone faced concrete guardwalls along approaches to the bridge. The irregular stone facing and lack of granite coping stones is somewhat cruder than the masonry detailing designed by Gilmore Clarke for earlier GWMP bridges.

Another design feature which combines contemporary engineering with architectural concepts is the use of horizontal curvature in the bridge deck. This allows for continuous curvature of the roadway, an important principle of parkway design. The sodded median strip was intended to further the ideal of least visual interruption of the roadway and the surrounding landscape, as advocated by Tunnard and others.

The bridge was built under a contract which included Windy Run Bridge (HAER No. VA-78) and Gulf Branch Bridge (HAER No. VA-76). The three structures are of similar design. The bridges were bid together in two contracts, one for the connecting roadway and abutments, and the other for the piers and superstructure. Final construction costs on the contract for the three bridge spans was $1,573,449.66.[2]

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[1]Christopher Tunnard, Man-made America: Chaos or Control?, 1963, p. 244.

[2]Bureau of Public Roads, "Final Construction Report, Project 1A2, 1A3, 1A4," 1959.

Description

The Donaldson Run Bridge is a three span steel plate girder bridge resting on concrete piers and abutments. The bridge is comprised of two 131' end spans and a 164' center span. The total length including wing walls is 499'. Two sets of piers are between 50' and 90' high. The roadway consists of two 24' lanes with a 6' median. Walkways are 2'-5" wide. They are separated from the roadway by 2' wide curb strips. The total width of the reinforced concrete deck is 68'.

Counterfort type (stepped) spread footings were cast in place on steep slopes of mica schist rock. Abutments and wing walls were built on the continuous footings. Support piers are comprised of two 7' diameter round columns tied with a rectangular concrete beam at the top. The piers were poured in approximately twenty lifts using a light steel shell form. Steel girders rest on the beams. The superstructure is a continuous steel plate girder and floorbeam system. The steel superstructure was fabricated, delivered and erected by the Atlas Machine and Iron Works of Arlington, Virginia. The deck follows the contour of the road and curves on a long radius. The original railings, designed to afford motorists the greatest possible view of the area below, are still in use.[3]

Alterations

As with many of the GWMP bridges, the sidewalk has been removed.

## III. SOURCES

Tunnard, Christopher. Man-made America: Chaos or Control?, Yale University Press, 1963.

U.S. Department of Commerce, Bureau of Public Roads. George Washington Memorial Parkway of National Capital Parks: Plans for Proposed Project 1A2, 1A3, 1A4: Piers and Superstructures; Bridge over Donaldson Run, Plan and Elevation (sheet 22 of 42). Microfiche reductions of original construction drawings on file at the National Capital Region Park Headquarters, National Park Service, Washington D.C.

U.S. Department of Commerce, Bureau of Public Roads, Region 15. "Final Construction Report, Project 1A2, 1A3, 1A4, George Washington Memorial Parkway Steel Viaducts over Windy Run, Donaldson Run, and Gulf Branch, Arlington County, Virginia." Submitted by E. L. Tarwater, Division Engineer, 9/28/59. On deposit at the remote storage facility of the Eastern Federal Lands Division, Federal Highway Administration, Sterling, Virginia.

U.S. Department of the Interior, Historic American Buildings Survey (HABS), No. VA-69, "George Washington Memorial Parkway," 1994. Prints and Photographs Division, Library of Congress, Washington D.C.

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[3]Ibid.